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MORGAN & FINNEGAN, L.L.P.
3 WORLD FINANCIAL CENTER
NEW YORK, NY 10281-2101

EXAMINER
LOO, JUVENA W

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOPatentCommunications@Morganfinnegan.com
Shopkins@Morganfinnegan.com
jmedina@Morganfinnegan.com

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>27 October 2008</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-64</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-64</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>08/29/2008 and 01/16/2009</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 1, 21, 24, 40, 43, and 58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 58, it is not clear as to how a memory could include a processor as stated in the claimed feature: "*a memory including a processor, operating system and application programs*".

Regarding claim 1, 3, 4, 21, 24, 40, and 43, it is not clear as to the "and/or" in the claims "sending device and/or said other receiving device" should read as "sending device and said other receiving device" or "sending device or said other receiving device".

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1 – 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Miller et al. (US 5,727,002) in view of Ha et al (US 7,136,353 B2) and further in view of

Vincent Roca and Benoit Mordelet (Improving the Efficiency of a Multicast File Transfer

Tool based on ALC) and R. Brian Adamson and Joseph P. Macker (Quantitative

Prediction of NACK-Oriented Reliable Multicast (NORM) Feedback).

Miller et al. discloses a data transmission method quickly and reliably transfers

data from a source to recipients comprising:

Regarding claim 1, *a method comprising*:

transmitting a data packet for <u>*delivery*</u> *from at least one sending device to at least*

one receiving device at different rates and in different layers (Miller: see Figures 1 and

6; see also "Referring to FIG. 6, a heterogeneous multicast network...at many different

speed links" in column 17, lines 45 – 55);

sending an acknowledgement or transmission of missing or mangled data from

said receiving device to said sending device and to another receiving device (Miller: see

Figure 1, 10, 12, and 14; see also "Referring to FIGS. 1 and 2, in accordance with...the

link 24 (step 14)" in column 4, line 50 through column 5, line 2);

transmitting a retransmission of said missing or mangled data from said sending

device or said other receiving device to complete the data packet and a data

transmission session (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in

accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line

19).

Miller does not disclose the features comprising:

scheduling a data packet for delivery;

sending at different rates and in different layers using Asynchronous Layered

Coding (ALC) with congestion control and Forward Error Coding (FEC);

determining at said receiving device missing or mangled data transmitted from

said sending device for multiple data rates and multiple layers using negative

acknowledgement (NACK)-Oriented Reliable Multicast (NORM) protocols at the

receiving device.

Ha et al. discloses quality of service management for multiple connections

comprising the feature:

scheduling a data packet for *delivery* (Ha: see Figure 3 and "Referring to FIG. 3...to the receiver)" in column 8, line 51 through column 9, line 7).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Miller et al. by using the feature, as taught by Ha et al., in order to provide for quality of service management for multiple connections within a communications network (Ha: see column 5, lines 11 – 18).

Vincent Roca and Benoit Mordelet disclose a multicast file transfer tool on top of Asynchronous Layered Coding (ALC) protocol comprising the feature:

sending at different rates and in different layers using Asynchronous Layered Coding (ALC) with congestion control and Forward Error Coding (FEC) (Roca and Mordelet: see sections 4.1 through 4.3.2 on pages 5 – 7; see also sections 6.1 through 6.4.3 on pages 9 – 13).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Miller et al. by using the features, as taught by Vincent Roca and Benoit Mordelet, in order to provide a scalable and efficient way of sending information to a set heterogeneous receivers (Roca and Mordelet: see section 1.1).

Moreover, R. Brian Adamson and Joseph P. Macker disclose an approach to use timer-based feedback suppression to facilitate scaling of NORM protocols comprising the feature:

determining at said receiving device missing or mangled data transmitted from said sending device for multiple data rates and multiple layers using negative acknowledgement (NACK)-Oriented Reliable Multicast (NORM) protocols at the receiving device (Adamson and Macker: see sections on "Exponential Timer Based Feedback Suppression", "Suppression Performance for Multicast Feedback Messages", and "Suppression Performance for Unicast-to-Source Feedback" on pages 1 – 3).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Miller et al. by using the features, as taught by R. Brian Adamson and Joseph P. Macker, in order to predict and suppress the amount of feedback traffic volume from receivers. The motivation is to avoid feedback implosion and to facilitate scaling of NORM protocols (Adamson and Macker: see Background).

Regarding claim 2, *wherein said acknowledgment of said missing or mangled data is a multicast or unicast negative acknowledgement message to the sending device and the another receiving device* (Miller: see Figure 1, 10, 12, and 14; see also "Referring to FIGS. 1 and 2, in accordance with… as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 3, *wherein said retransmission of missing or mangled data is a multicast or unicast message from the sending device and/or another receiving device* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19; see also "A maximum pass...at a later time" in column 8, lines 15 – 31).

Regarding claim 4, *wherein said missing or mangled data is retransmitted from said sending device and/or said other receiving device that possesses the missing or mangled data from the data transmission* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 5, *further comprising prioritizing the retransmitting of said missing or mangled data based on said acknowledgement, number of data transmissions missed, location of missed or mangled data or the like* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 6, *further comprising retransmitting said missing or mangled data by retransmitting the original data transmission* (Miller: see Figure 1 and "Referring

to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50

through column 5, line 19).

Regarding claim 7, *further comprising retransmitting said missing or mangled*

data by retransmitting only the missing data of the original data transmission (Miller: see

Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in

column 4, line 50 through column 5, line 19).

Regarding claim 8, *further comprising repositioning said missing or mangled data*

in the data transmission (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in

accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line

19).

Regarding claim 9, *providing reliability management and congestion control to*

facilitate   multicast   transmission   of   data   packets   to   receivers (Miller: see

"Congestion/Flow Control...control process can be made automatic" in column 10, line

25 through column 12, line 50; see also Figure 1 and "Referring to FIGS. 1 and 2, in

accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line

19).

Regarding claim 10, *further comprising sending the original data transmission*

from said receiving device using an active Asynchronous Layered Coding (ALC)

mechanism _including forward error coding_ (Roca and Mordelet: see sections 4.1

through 4.3 in pages 5 - 7).

Regarding claim 11, _further comprising transmitting said acknowledgement or_

missing or mangled data from said receiving device using a negative acknowledgement

(NACK) and retransmission mechanism (Miller: see Figure 1 and "Referring to FIGS. 1

and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column

5, line 19).

Regarding claim 12, _where said missing or mangled data is from a previous_

transmission, an earlier transmission or a predicted transmission (Miller: see Figure 1

and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column

4, line 50 through column 5, line 19).

Regarding claim 13, _further comprising defining unidirectional transmission block_

identifiers and corresponding objects before transmitting data to a receiving device

(Miller: see "The server logically...block number and its frame number within that block"

in column 7, lines 37 – 48).

Regarding claim 14, _wherein said data is transmitted from the sending device_

using unidirectional protocol (Miller: see "Referring to FIG. 3...the data being sent" in

column 5 line 64 through column 6, line 11; see also Figure 1 and ""Referring to FIGS. 1

and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column

5, line 19).

Regarding claim 15, *wherein said acknowledgement is transmitted by a receiving*

device using a bi-directional or uplink simplex protocol using the same transmission

block identifier as the unidirectional protocol (Miller: see "The server logically...block

number and its frame number within that block" in column 7, lines 37 – 48).

Regarding claim 16, *further comprising sending an acknowledgment from said*

receiving or sending device that the missing or mangled data has been correctly

received (Miller: see "Referring to FIG. 3...the data being sent" in column 5 line 64

through column 6, line 11; see also Figure 1 and ""Referring to FIGS. 1 and 2, in

accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line

19).

Regarding claim 17, *wherein said acknowledgement contains a plurality of*

negative acknowledgements regarding missing or mangled data in the data

transmission (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance

with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 18, *said receiving device is a personal communication device, GPRS, WLAN, DVB or other similar wireless device* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

Regarding claim 19, *wherein said sending device is a server, IP-based device, GPRS, DVB other similar wireless device* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

Regarding claim 20, *said sending device and said receiving device are in the same network or in different networks* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

Regarding claim 21, *a computer readable medium storing a computer program including program code, executable in a computer, comprising:*

program code for transmitting a data packet for delivery from at least one sending device to at least one receiving device at different rates and in different layers (Miller: see Figures 1 and 6; see also "Referring to FIG. 6, a heterogeneous multicast network...at many different speed links" in column 17, lines 45 – 55);

program code for sending an acknowledgement or transmission of missing or mangled data from said receiving device to said sending device and to another receiving device (Miller: see Figure 1, 10, 12, and 14; see also "Referring to FIGS. 1 and 2, in accordance with...the link 24 (step 14)" in column 4, line 50 through column 5, line 2);

program code for transmitting a retransmission of said missing or mangled data from said sending device and/ or said other receiving device to complete the data packet and a data transmission session (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Miller does not disclose the feature:

program code for scheduling a data packet for delivery;

program code for sending at different rates and in different layers using Asynchronous Layered Coding (ALC) with congestion control and Forward Error Coding (FEC);

program code for determining at said receiving device missing or mangled data transmitted from said sending device for multiple data rates and multiple layers using negative acknowledgement (NACK)-Oriented Reliable Multicast (NORM) protocols at the receiving device with FEC for repair of damaged packets or packets that have not been received.

Ha et al. discloses quality of service management for multiple connections comprising the feature:

program code for <u>scheduling</u> a data packet for <u>delivery</u> (Ha: see Figure 3 and "Referring to FIG. 3...to the receiver)" in column 8, line 51 through column 9, line 7).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Miller et al. by using the feature, as taught by Ha et al., in order to provide for quality of service management for multiple connections within a communications network (Ha: see column 5, lines 11 – 18).

Vincent Roca and Benoit Mordelet disclose a multicast file transfer tool on top of Asynchronous Layered Coding (ALC) protocol comprising the features:

program code for sending at different rates and in different layers using Asynchronous Layered Coding (ALC) with congestion control and Forward Error Coding (FEC) (Roca and Mordelet: see sections 4.1 through 4.3.2 on pages 5 – 7; see also sections 6.1 through 6.4.3 on pages 9 – 13).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Miller et al. by using the features, as taught by Vincent

Roca and Benoit Mordelet, in order to provide a scalable and efficient way of sending

information to a set heterogeneous receivers (Roca and Mordelet: see section 1.1).

Moreover, R. Brian Adamson and Joseph P. Macker disclose an approach to use

timer-based feedback suppression to facilitate scaling of NORM protocols comprising

the feature:

program code for determining at said receiving device missing or mangled data

transmitted from said sending device for multiple data rates and multiple layers using

negative acknowledgement (NACK)-Oriented Reliable Multicast (NORM) protocols at

the receiving device with FEC for repair of damaged packets or packets that have not

been received (Adamson and Macker: see sections on "Exponential Timer Based

Feedback Suppression", "Suppression Performance for Multicast Feedback Messages",

and "Suppression Performance for Unicast-to-Source Feedback" on pages 1 – 3; see

also "Since MDP receivers initiate NACK repair cycles only on FEC code block

boundaries...in these protocol parameters" on page 5, last line in right column through

page 6, line 12 in the left column).

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify the system of Miller et al. by using the features, as taught by R.

Brian Adamson and Joseph P. Macker, in order to predict and suppress the amount of

feedback traffic volume from receivers. The motivation is to avoid feedback implosion

and to facilitate scaling of NORM protocols (Adamson and Macker: see Background).

Regarding claim 22, *wherein said acknowledgment of said missing or mangled data is a multicast or unicast negative acknowledgement <u>message to the sending device and the another receiving device</u>* (Miller: see Figure 1, 10, 12, and 14; see also "Referring to FIGS. 1 and 2, in accordance with… as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 23, *wherein said retransmission of missing or mangled data is a multicast <u>and</u> unicast message <u>from the sending device and/ or another receiving device</u>* (Miller: see Figure 1 and ""Referring to FIGS. 1 and 2, in accordance with…as a "round" or "pass"" in column 4, line 50 through column 5, line 19; see also "A maximum pass…at a later time" in column 8, lines 15 – 31).

Regarding claim 24, *wherein said missing or mangled data is retransmitted from said sending device <u>and</u>/or said other receiving device that possesses the missing or mangled data from the data transmission* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with…as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 25, *further comprising program code for prioritizing the retransmitting of said missing or mangled data based on said acknowledgement, number of data transmissions missed, location of missed or mangled data or the like*

(Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round"

or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 26, *further comprising program code for retransmitting said*

missing or mangled data by retransmitting the original data transmission (Miller: see

Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in

column 4, line 50 through column 5, line 19).

Regarding claim 27, *further comprising program code for retransmitting said*

missing or mangled data by retransmitting only the missing data of the original data

transmission (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance

with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 28, *further comprising program code for repositioning said*

missing or mangled data in the data transmission (Miller: see Figure 1 and "Referring to

FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through

column 5, line 19).

Regarding claim 29, *providing reliability management and congestion control to*

facilitate multicast transmission of data packets to receivers (Miller: see

"Congestion/Flow Control...control process can be made automatic" in column 10, line

25 through column 12, line 50; see also Figure 1 and "Referring to FIGS. 1 and 2, in

accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 30, *further comprising program code for sending the original data transmission from said receiving device using an active Asynchronous Layered Coding (ALC) mechanism* (Roca and Mordelet: see sections 4.1 through 4.3 in pages 5 - 7).

Regarding claim 31, *further comprising program code for transmitting said acknowledgement or missing or mangled data from said receiving device using a negative acknowledgement (NACK) and retransmission mechanism* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 32, *where said missing or mangled data is from a previous transmission, an earlier transmission or a predicted transmission* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 33, *further comprising program code for defining unidirectional transmission block identifiers and corresponding objects before transmitting data to a*

receiving device (Miller: see "The server logically...block number and its frame number within that block" in column 7, lines 37 – 48).

Regarding claim 34, *wherein said data is transmitted from the sending device using unidirectional protocol* (Miller: see "Referring to FIG. 3...the data being sent" in column 5 line 64 through column 6, line 11; see also Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 35, *wherein said acknowledgement is transmitted by a receiving device using a bi-directional or uplink simplex protocol using the same transmission block identifier as the unidirectional protocol* (Miller: see "The server logically...block number and its frame number within that block" in column 7, lines 37 – 48).

Regarding claim 36, *further comprising program code for sending an acknowledgment from said receiving or sending device that the missing or mangled data has been correctly received* (Miller: see "Referring to FIG. 3...the data being sent" in column 5 line 64 through column 6, line 11; see also Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 37, *further comprising program code for sending a plurality of negative acknowledgements in the same negative acknowledgement message* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19; see also Figure 4 and "As the server passes block...or not received" in column 8, lines 32 – 44).

Regarding claim 38, *wherein said receiving device is a personal communication device, GPRS, WLAN, DVB of other similar wireless device* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

Regarding claim 39, *wherein said sending device is a server, IP-based device, GPRS, DVB or other similar wireless device* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

Regarding claim 40, *a system comprising*:

at least one sending device for transmitting data for delivery to at least one receiving device at different rates and in different layers (Miller: see Figures 1 and 6; see also "Referring to FIG. 6, a heterogeneous multicast network...at many different speed links" in column 17, lines 45 – 55);

sending an acknowledgement or transmission of missing or mangled data to said

sending device or to another receiving device regarding retransmission of at lest

missing or mangled data (Miller: see Figure 1, 10, 12, and 14; see also "Referring to

FIGS. 1 and 2, in accordance with...the link 24 (step 14)" in column 4, line 50 through

column 5, line 2);

at least one network for establishing communication between said sending

device and said receiving device as well as communication between receiving devices

in the network (Miller: see Figures 1 and 2; see also "Referring to FIGS. 1 and 2, in

accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line

19); *and*

transmitting a retransmission of said missing or mangled data from said sending

device or said other receiving device in the same and/or different networks to complete

the data packet and a data transmission session (Miller: see Figure 1 and "Referring to

FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through

column 5, line 19).

Miller does not disclose the features:

scheduling data for delivery;

sending at different rates and in different layers using Asynchronous Layered

Coding (ALC) with congestion control and Forward Error Coding (FEC);

at least one receiving device for determining device missing or mangled data

transmitted from said sending device for multiple data rates and multiple layers using

negative acknowledgement (NACK)-Oriented Reliable Multicast (NORM) protocols at

the receiving device with FEC for repair of damaged packets or packets that have not

been received.

Ha et al. discloses quality of service management for multiple connections

comprising the feature:

scheduling data for *delivery* (Ha: see Figure 3 and "Referring to FIG. 3...to the

receiver)" in column 8, line 51 through column 9, line 7).

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify the system of Miller et al. by using the feature, as taught by Ha et

al., in order to provide for quality of service management for multiple connections within

a communications network (Ha: see column 5, lines 11 – 18).

Vincent Roca and Benoit Mordelet disclose a multicast file transfer tool on top of

Asynchronous Layered Coding (ALC) protocol comprising the feature:

sending at different rates and in different layers using Asynchronous Layered

Coding (ALC) with congestion control and Forward Error Coding (FEC) (Roca and

Mordelet: see sections 4.1 through 4.3.2 on pages 5 – 7; see also sections 6.1 through 6.4.3 on pages 9 – 13).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Miller et al. by using the features, as taught by Vincent Roca and Benoit Mordelet, in order to provide a scalable and efficient way of sending information to a set heterogeneous receivers (Roca and Mordelet: see section 1.1).

Moreover, R. Brian Adamson and Joseph P. Macker disclose an approach to use timer-based feedback suppression to facilitate scaling of NORM protocols comprising the feature:

at least one receiving device for determining missing or mangled data transmitted from said sending device <u>*for multiple data rates and multiple layers*</u> *using negative acknowledgement (NACK)-Oriented Reliable Multicast (NORM) protocols at the receiving device with FEC for repair of damaged packets or packets that have not been received* (Adamson and Macker: see sections on "Exponential Timer Based Feedback Suppression", "Suppression Performance for Multicast Feedback Messages", and "Suppression Performance for Unicast-to-Source Feedback" on pages 1 – 3; see also "Since MDP receivers initiate NACK repair cycles only on FEC code block boundaries…in these protocol parameters" on page 5, last line in right column through page 6, line 12 in the left column).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Miller et al. by using the features, as taught by R. Brian Adamson and Joseph P. Macker, in order to predict and suppress the amount of feedback traffic volume from receivers. The motivation is to avoid feedback implosion and to facilitate scaling of NORM protocols (Adamson and Macker: see Background).

Regarding claim 41, *wherein said acknowledgment of said missing or mangled data is a multicast or unicast negative acknowledgement message <u>to the sending device and the another receiving device</u>* (Miller: see Figure 1, 10, 12, and 14; see also "Referring to FIGS. 1 and 2, in accordance with… as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 42, *wherein said retransmission of missing or mangled data is a multicast or unicast message <u>from the sending device and the another receiving device</u>* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with…as a "round" or "pass"" in column 4, line 50 through column 5, line 19; see also "A maximum pass…at a later time" in column 8, lines 15 – 31).

Regarding claim 43, *wherein said missing or mangled data are retransmitted from said sending device <u>and</u>/or another receiving device that possesses the missing or mangled data* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with…as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 44, *wherein the retransmission of said missing or mangled data prioritized based on the acknowledgement or missing or mangled data received, number of data transmissions missed, location of missed or mangled data or the like* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 45, *wherein said missing or mangled data by retransmitting along with the entire original data transmission* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 46, *wherein retransmitting said missing or mangled data involves retransmission only the missing data of the original data transmission* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 47, *wherein said retransmitting involves repositioning said missing or mangled data in the data transmission* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 48, *including reliability management and congestion control to facilitate multicast transmission of data packets to receivers* (Miller: see "Congestion/Flow Control...control process can be made automatic" in column 10, line 25 through column 12, line 50; see also Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 49, *wherein said data transmitted from said sending device using an active Asynchronous Layered Coding (ALC) mechanism* (Roca and Mordelet: see sections 4.1 through 4.3 in pages 5 - 7).

Regarding claim 50, *further comprising transmitting said acknowledgement from said receiving device using a negative acknowledgement (NACK) and retransmission mechanism* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 51, *where said missing or mangled data is from a previous transmission, an earlier transmission or a predicted transmission* (Miller: see Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 52, *wherein sending device defines unidirectional transmission block identifiers and corresponding objects before transmitting data to a receiving device* (Miller: see "The server logically...block number and its frame number within that block" in column 7, lines 37 – 48).

Regarding claim 53, *wherein said sending device transmits data using a unidirectional protocol* (Miller: see "Referring to FIG. 3...the data being sent" in column 5 line 64 through column 6, line 11; see also Figure 1 and "Referring to FIGS. 1 and 2, in accordance with...as a "round" or "pass"" in column 4, line 50 through column 5, line 19).

Regarding claim 54, *wherein said receiving device transmit an acknowledgement using a bi-directional or uplink simplex protocol using the same transmission block identifier as the unidirectional protocol* (Miller: see "The server logically...block number and its frame number within that block" in column 7, lines 37 – 48).

Regarding claim 55, *wherein said sending device and receiving device are in the same network or in different networks* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

Regarding claim 56, *wherein said receiving device is a personal communication device, GPRS, WLAN, DVB of other similar wireless device* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

Regarding claim 57, *wherein said sending device is a server, IP-based device, DVB, GPRS or other similar wireless device* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

6.   Claims 58, 59, 60, 61, 62, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hur et al. (Patent Number: 6,141,785) in view of Vincent Roca and Benoit Mordelet ("Improving the Efficiency of a Multicast File Transfer Tool based on ALC", INRIA, No 4411, March 2002).

Hur discloses an error control method in an inter-multi-user multimedia communication environment comprising:

Regarding claim 58, an apparatus, comprising:

at least one processor for determining missing or mangled data in a data transmission sent by a sending device (Hur: see "The receiver detects...checksum of data packet" in column 4, lines 39 – 42);

a negative acknowledgement (NACK) and transmission mechanism for sending an acknowledgement or transmission of missing and mangled data to said sending device or to another receiving device (Hur: see "If the receiver...retransmission process" in column 6, lines 54 – 63); *and*

at least one network for establishing communication between said sending device and said receiving device as well as communication between receiving devices in the network (Hur: see "The present invention...the procedure is terminated" in column 3, lines 29 – 57);

transmitting a retransmission of said missing or mangled data from said sending device or said other receiving device in the same or different networks to complete the data packet and a data transmission session (Hur: see "The present invention...the procedure is terminated" in column 3, lines 29 – 57; see also "If the receiver...retransmission process" in column 6, lines 54 – 63; see also "The partial loss...take charge of retransmission" in column 7, lines 20 – 34)*; and*

a memory for storing the data transmission from the sending device or other receiving device (Hur: see "In case where...no longer be kept in the buffer" in column 6, line 60 through column 7, line 1).

Hur does not explicitly disclose the features comprising:

sending device <u>for multiple data rates and multiple layers</u> using Asynchronous

Layered Coding (ALC) with congestion control and Forward Error Coding (FEC);

transmission of missing and mangled data to said sending device or to another

receiving device with FEC for repair of damaged packets or packets that have not been

received;

a memory including a processor, operating system and application programs.

Vincent Roca and Benoit Mordelet disclose a multicast file transfer tool on top of

Asynchronous Layered Coding (ALC) protocol comprising the feature:

sending device <u>for multiple data rates and multiple layers</u> using Asynchronous

Layered Coding (ALC) with congestion control and Forward Error Coding (FEC) (Roca

and Mordelet: see sections 4.1 through 4.3.2 on pages 5 – 7; see also sections 6.1

through 6.4.3 on pages 9 – 13);

transmission of missing and mangled data to said sending device or to another

receiving device with FEC for repair of damaged packets or packets that have not been

received (Roca and Mordelet: see sections 4.1 through 4.3.2 on pages 5 – 7; see also

sections 6.1 through 6.4.3 on pages 9 – 13);

a memory including a processor, operating system and application programs

(Roca and Mordelet: see sections 6.1 and 6.2).

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify the system of Miller et al. by using the features, as taught by Vincent

Roca and Benoit Mordelet, in order to provide a scalable and efficient way of sending

information to a set heterogeneous receivers (Roca and Mordelet: see section 1.1).

Regarding claim 59, *wherein said acknowledgment of said missing or mangled*

data is a multicast or unicast negative acknowledgement message *to the sending*

device and the another receiving device (Hur: see "If the receiver...retransmission

process" in column 6, lines 54 – 63; see also "The partial loss...take charge of

retransmission" in column 7, lines 20 – 34).

Regarding claim 60, *wherein said retransmission of missing or mangled data is a*

multicast or unicast message *of the sending device and the another receiving device*

(Hur: see Figure 3 and "The host generates...the multicast group" in column 10, lines 49

– 54).

Regarding claim 61, *wherein said missing or mangled data is retransmitted from*

said sending device *and*/*or other receiving device that possesses the missing or*

mangled blocks (Hur: see "If the receiver...retransmission process" in column 6, lines 54

– 63; see also "The partial loss...take charge of retransmission" in column 7, lines 20 –

34).

Regarding claim 62, *further comprising sending the original data transmission*

from said server using an active Asynchronous Layered Coding (ALC) mechanism

including forward error coding (Roca and Mordelet: see sections 4.1 through 4.3 in

pages 5 - 7).

Regarding claim 63, *where said missing or mangled data is from a previous*

transmission, an earlier transmission or a predicted transmission (Hur: see "The partial

loss...peer-host retransmits them" in column 7, lines 20 – 23).

7.   Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hur et

al. (Patent Number: 6,141,785) in view of Vincent Roca and Benoit Mordelet (Improving

the Efficiency of a Multicast File Transfer Tool based on ALC) and further in view of

Miller et al. (5,727,002).

Hur et al. discloses all the claimed limitations as in paragraph 4 above. Hur et al.

does not disclose the feature: regarding claim 64, *wherein said receiving device is*

personal communication device, GPRS, WLAN, DVB of other similar wireless device.

Miller et al. discloses a data transmission method quickly and reliably transfers data from a source to recipients comprising:

Regarding claim 64, *wherein said receiving device is personal communication device, GPRS, WLAN, DVB of other similar wireless device* (Miller: see Figures 2 and 6; see also "Referring to FIGs. 1 and 2...over the link 24" in column 4, lines 51 – 60; see also "The link 24 can be...systems including DOS" in column 5, lines 27 – 39).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate the approach, as taught by Miller et al., into the system of Hur et al. in providing both fast and reliable transmission of files (see column 2, lines 20 - 21).

Response to Arguments

8.   Applicant's arguments with respect to claims 1-64 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUVENA LOO whose telephone number is (571)270-1974. The examiner can normally be reached on Monday - Friday: 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JUVENA LOO/
Examiner
Art Unit 2416
January 30, 2009

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2416